

CODING FORMS FOR SRC INDEXING

Microfiche No.	OTS0000971		
New Doc ID	FYI-OTS-0794-0971	Old Doc ID	84940000071
Date Produced	01/05/87	Date Received	07/26/94
		TSCA Section	FYI
Submitting Organization	ETHYL CORP		
Contractor			
Document Title	INITIAL SUBMISSION: MATERIAL SAFETY DATA SHEETS ON HEXABROMOCYCLODODECANE AND PENTABROMODIPHENYLOXIDE		
Chemical Category	HEXABROMOCYCLODODECANE; PENTABROMODIPHENYLOXIDE		



74I-0794-000971
MATERIAL SAFETY DATA SHEET

Emergency Phone 504-344-7147



84940000071

Contains No CBI

99.0.8

**PRODUCT
IDENTIFICATION**



FYI-94-000971
INIT 07/26/94

TRADE NAME: Saytex® HBCD
CHEMICAL NAME: Hexabromocyclododecane
CHEMICAL FAMILY: Brominated aliphatic
Hydrocarbon
CHEMICAL FORMULA: $C_{12}H_{18}Br_6$
CAS NO.: 3194-55-6

THIS MATERIAL IS IN COMPLIANCE WITH THE TOXIC
SUBSTANCES CONTROL ACT (15 USC 2601 - 2629).

**CHEMICAL
AND
PHYSICAL
PROPERTIES**

APPEARANCE/ODOR: White to off-white powder/no
odor.
MELTING RANGE: 185°-195°C/365°-383°F.
VAPOR PRESSURE: < 1.0 mm Hg @ 20°C/68°F.
VAPOR DENSITY: 22 (air = 1).
SOLUBILITY IN WATER: Insoluble.

**FIRE
AND
EXPLOSION
HAZARDS**

FLASH POINT (METHOD): Not applicable.
FLAMMABLE LIMITS: Not applicable.
EXTINGUISHING MEDIA: Dry chemical, water spray
(fog), foam or carbon
dioxide.
HAZARDOUS THERMAL DECOMPOSITION PRODUCTS:
Include oxides of carbon and
hydrogen bromide.

RECEIVED
OPPT 06/09/86
3:56
Continued

Ethyl Corporation - Chemicals Group

Ethyl Tower 451 Florida Blvd., Baton Rouge, LA 70801
REPRESENTING ETHYL FOREIGN SALES CORPORATION FOR EXPORT SALES

TRADE NAME: Saytex® HBCD**SPECIAL FIRE FIGHTING PROCEDURES:**

High temperature may
liberate toxic gases. Do
not breathe smoke or vapors.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

None known.

REACTIVITY DATA	STABILITY:	Stable.
	CONDITIONS TO AVOID:	Temperature in excess of 200°C/392°F.
	MATERIALS TO AVOID:	Strong oxidizing agents.
	HAZARDOUS POLYMERIZATION:	Will not occur.

**HEALTH
HAZARDS****CHRONIC EFFECTS OF OVEREXPOSURE:**

None known.

TOXICITY DATA:

ORAL LD₅₀ (rat) = > 10,000
mg/kg.
DERMAL LD₅₀ (rabbit) =
> 8,000 mg/kg.

This material is not on the NTP, IARC, OSHA, or other
Lists of Carcinogens.

**EMERGENCY
FIRST
AID
PROCEDURES****INHALATION:**

If inhaled, remove to fresh
air.

EYE CONTACT:

Begin immediate eye irriga-
tion with cool water.

SKIN CONTACT:

Wash contaminated area with
soap and water.

INGESTION:

If swallowed, give two
glasses of water.

06/09/86

0004

TRADE NAME: Saytex® HBCD

**EXPOSURE
CONTROL
INFORMATION**

EXPOSURE LIMITS: Not established by OSHA or ACGIH.

EYE PROTECTION: Chemical goggles or face shield when splash may occur.

PROTECTIVE GLOVES: Resistant to chemical penetration.

RESPIRATORY PROTECTION: A NIOSH approved dust respirator should be used in atmospheres that are irritating.

MECHANICAL VENTILATION: Recommended.

LOCAL VENTILATION: At source of dusting.

OTHER: If repeated or prolonged skin contact or contamination of clothing is likely, protective clothing should be worn.

**ENVIRONMENTAL
PROTECTION**

SPILLS OR LEAKS: Sweep or shovel material into appropriate container for disposal.

DISPOSAL METHODS: Under the CERCLA/RCRA regulations in effect July 3, 1985, this product is not regulated as a hazardous waste or material. Therefore, it may be disposed of as an industrial waste in a manner acceptable to good waste management practice and in compliance with applicable local, state, and federal regulations. However, we strongly recommend disposal of this product in a chemically secure landfill.

06/09/86
Continued

TRADE NAME: Saytex® HBCD

STORAGE REQUIREMENT:

Store in dry area away from
strong oxidizing agents.
Keep container tightly
closed.

REvised: 06/09/86

SUPERSEDES: 10/16/84

T&IH File Code: TX 00488-HB-0

MSDS prepared by: Toxicology and Industrial Hygiene Department
Ethyl Corporation

FOR ADDITIONAL NONEMERGENCY MSDS INFORMATION, CONTACT:
TOXICOLOGY AND INDUSTRIAL HYGIENE DEPARTMENT
ETHYL CORPORATION
451 FLORIDA ST.
BATON ROUGE, LA 70801
(504) 388-7717

THIS MATERIAL SAFETY DATA SHEET CONTAINS AT LEAST
THE INFORMATION REQUIRED BY THE FEDERAL OSHA HAZARD
COMMUNICATION RULE, 29 CFR 1910.1200(g)(2).

0270M

MATERIAL SAFETY DATA SHEET

Emergency Phone 504-344-7147

99.0.20

PRODUCT IDENTIFICATION	TRADE NAME:	Saytex® 115 Flame Retardant
	SYNONYMS:	Pentabromodiphenyloxide
	CHEMICAL NAME:	Pentabromodiphenyloxide
	CHEMICAL FAMILY:	Brominated diphenyl oxide
	CHEMICAL FORMULA:	C ₁₂ H ₅ Br ₅ O
	CAS NO.:	32534-81-9

THIS MATERIAL IS IN COMPLIANCE WITH THE TOXIC SUBSTANCES CONTROL ACT (15 USC 2601 - 2629).

SUMMARY OF HAZARDS	May cause liver and thyroid changes if overexposed for prolonged periods.
---------------------------	---

	<u>COMPONENT NAME</u>	<u>CAS NO.</u>	<u>EXPOSURE LIMIT</u>
HAZARDOUS COMPONENTS	Tetrabromodiphenyl-oxide	40088-47-9	Not established by OSHA/ACGIH
	Pentabromodiphenyl-oxide	32534-81-9	
	Hexabromodiphenyl-oxide	36483-60-0	
	Higher brominated diphenyloxides		

Carcinogenicity listing of the above indicated by:
 @ = NTP; # = IARC; & = OSHA; * = Other.

CHEMICAL AND PHYSICAL PROPERTIES	APPEARANCE/ODOR:	Clear, amber, viscous liquid/essentially odorless.
	VAPOR PRESSURE:	Less than 1.0 mm Hg (@ 20°C/68°F).
	SOLUBILITY IN WATER:	Less than 0.1%

01/05/87

Ethyl Corporation - Chemicals Group

Ethyl Tower 451 Florida Blvd., Baton Rouge, LA 70801

REPRESENTING ETHYL FOREIGN SALES CORPORATION FOR EXPORT SALES

TRADE NAME: Saytex® 115 Flame Retardant

DENSITY: 2.27 g/mL (@ 25°C/77°F).
PERCENT VOLATILE: 0.1 (@ 105°C for 1 hour).

FIRE
AND
EXPLOSION
HAZARDS

FLASH POINT (METHOD): Not applicable.
FLAMMABLE LIMITS: Not applicable.
EXTINGUISHING MEDIA: Dry chemical, water spray
(fog), foam or carbon
dioxide.
HAZARDOUS THERMAL DECOMPOSITION PRODUCTS:
Include hydrogen bromide and
bromine.
SPECIAL FIRE FIGHTING PROCEDURES:
Do not breathe smoke or
vapors.
UNUSUAL FIRE AND EXPLOSION HAZARDS:
None.

REACTIVITY
DATA

STABILITY: Stable.
CONDITIONS TO AVOID: Extremely high heat and open
flame.
MATERIALS TO AVOID: None.
HAZARDOUS POLYMERIZATION:
Will not occur.

HEALTH
HAZARDS

EYE CONTACT: Not expected to be an
irritant.
SKIN ABSORPTION: Not expected to be acutely
toxic.
SKIN IRRITATION: Not expected to be an
irritant.
INGESTION: Not expected to be acutely
toxic.

01/05/87
Continued

TRADE NAME: Saytex® 115 Flame Retardant

CHRONIC EFFECTS OF OVEREXPOSURE:

Literature data indicate this product causes liver and thyroid changes in the laboratory rat and has the potential to bioaccumulate after prolonged ingestion.

**EMERGENCY
FIRST
AID
PROCEDURES**

INHALATION: If signs or symptoms occur from breathing vapors, remove to fresh air.

EYE CONTACT: Begin immediate eye irrigation with cool water for at least 15 minutes with the eyelids held open by gently separating them with the fingers.

SKIN CONTACT: Wash contaminated area(s) with soap and water.

INGESTION: Give a minimum of two glasses of water (16 oz. or 500 ml). Seek medical attention.

**EXPOSURE
CONTROL
INFORMATION**

EXPOSURE LIMITS: Not established by OSHA/ACGIH.

EYE PROTECTION: Chemical goggles.

PROTECTIVE GLOVES: Resistant to chemical penetration.

RESPIRATORY PROTECTION: Organic vapor respirator when exposed to vapors from heated material.

LOCAL EXHAUST VENTILATION: At source of heated vapors.

MECHANICAL VENTILATION: Recommended.

OTHER: If skin contact or contamination of clothing is likely, protective clothing should be worn.

01/05/87

TRADE NAME: Saytex® 115 Flame Retardant

SPILLS OR LEAKS:

Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Take up small spills with dry chemical absorbent. Large spills may be taken up with pump or vacuum and finished off with dry chemical absorbent. May require excavation of contaminated soil.

**ENVIRONMENTAL
PROTECTION**

DISPOSAL METHODS:

Under the CERCLA/RCRA regulations in effect December 29, 1986, this product is not regulated as a hazardous waste or material. Therefore, it may be disposed of as an industrial waste in a manner acceptable to good waste management practice and in compliance with applicable local, state, and federal regulations. However, we strongly recommend disposal of this product in a chemically secure landfill.

STORAGE REQUIREMENT:

Store in dry, well ventilated area.

REVISED: 01/05/87

SUPERSEDES: 11/06/85

MSDS prepared by: Toxicology and Industrial Hygiene Department
Ethyl Corporation

FOR ADDITIONAL NONEMERGENCY MSDS INFORMATION, CONTACT:

TOXICOLOGY AND INDUSTRIAL HYGIENE DEPARTMENT
ETHYL CORPORATION
451 FLORIDA ST.
BATON ROUGE, LA 70801
(504) 388-7717

THIS MATERIAL SAFETY DATA SHEET CONTAINS AT LEAST
THE INFORMATION REQUIRED BY THE FEDERAL OSHA HAZARD
COMMUNICATION RULE, 29 CFR 1910.1200(g)(2).

0123M



EXPLANATION OF MATERIAL SAFETY DATA SHEET TERMINOLOGY

PRODUCT IDENTIFICATION

TRADE NAME AND SYNONYMS

The name under which the product is sold and common synonyms.

CHEMICAL NAME AND FORMULA

Chemical descriptive name and the chemical formula.

CAS NO.

Chemical Abstract Service registry number which identifies the product.

SUMMARY OF HAZARDS

Emphasizes major hazard(s) associated with the product. Further details are provided in subsequent sections.

COMPONENTS

COMPONENT NAME

Chemical, generic, or proprietary name that identifies the product or components of a mixture. Inclusion of a component is not necessarily based on hazard criteria.

EXPOSURE LIMIT

The airborne concentration at which most workers can be exposed without any expected adverse effects. Source may be Ethyl guideline, ACGIH TLV[®] (Threshold Limit Value), or OSHA PEL (Permissible Exposure Limit).

TYPES OF EXPOSURE LIMITS

TWA - the time-weighted average concentration for a normal 8-hour workday and a 40-hour workweek, to which nearly all workers may be repeatedly exposed, day after day, without adverse effect.

STEL (Short-Term Exposure Limit) - a 15 minute time-weighted average exposure which should not be exceeded at any time during a workday even if the 8-hour time-weighted average is within the TLV.

CEILING - the concentration that should not be exceeded during any part of the working exposure.

Peak - The maximum concentration and duration of exposure allowable above the ceiling concentration for an 8-hour shift.

ACGIH - American Conference of Governmental Industrial Hygienists.

OSHA - Occupational Safety and Health Administration.

NIOSH - National Institute of Occupational Safety and Health.

CARCINOGENICITY LISTING

Indicates whether a component is thought to be a cancer hazard based on human experience and animal data.

NTP - National Toxicology Program.

IARC - International Agency for Research on Cancer.

OTHER - May include preliminary data or studies not yet evaluated by the major agencies. Also includes ACGIH and NIOSH listings.

CHEMICAL AND PHYSICAL PROPERTIES

APPEARANCE/ODOR

Description of material at normal temperature and pressure that may be useful in identifying the presence of the product.

BOILING POINT

The temperature at which the vapor pressure of the liquid is equal to the pressure of the atmosphere.

MELTING POINT (FREEZING POINT)

Temperature at which a substance changes from the solid to liquid state.

VAPOR PRESSURE

The pressure exerted at any temperature by a vapor existing in equilibrium with its liquid or solid phase.

SOLUBILITY IN WATER

The amount of the product, by weight, that will dissolve in a given weight of water at a specified temperature.

	grams/100 H ₂ O
Negligible	< 0.1
Slight	0.1 - 1.0
Moderate	1 - 10
Appreciable	> 10
Complete	Soluble in all proportions

SPECIFIC GRAVITY

Ratio of the weight of a volume of the product to the weight of an equal volume of water (liquids/solids) or air (gases).

EVAPORATION RATE

Ratio of the rate of vaporization of the product to the rate of a known material.

PERCENT VOLATILES

The percentage of the product (liquid or solid) that will evaporate at ambient temperature.

POUR POINT

The lowest temperature at which a liquid will flow when the container is inverted.

VISCOSITY

A measure of flow characteristics of a liquid, expressed in units called Centistokes (cSt).

FIRE AND EXPLOSION HAZARDS

FLASH POINT (CLOSED CUP METHOD)

Lowest temperature at which the product will give off enough vapor to ignite.

FLAMMABLE LIMITS

Range of vapor concentration (percent by volume in air) which will burn or explode in the presence of spark of flame. LEL is the lower explosive limit and UEL is the upper explosive limit.

EXTINGUISHING MEDIA

The fire fighting agents which are recommended for use.

HAZARDOUS THERMAL DECOMPOSITION PRODUCTS

Known hazardous products resulting from heating or burning the compound.

SPECIAL FIREFIGHTING PROCEDURES

General firefighting procedures of chemical fires are not described, but special procedures are given, if required.

UNUSUAL FIRE AND EXPLOSION HAZARDS

Hazards not covered by other sections of the MSDS pertaining to chemical reactions in the presence of heat and/or fire.

REACTIVITY DATA

STABILITY

Indicates the susceptibility of the product to dangerous decomposition.

CONDITIONS AND MATERIALS TO AVOID

Gives the conditions and materials that may cause undesirable reactions or instability of the product.

HAZARDOUS DECOMPOSITION PRODUCTS

Describes the hazardous materials produced from a chemical reaction.

HAZARDOUS POLYMERIZATION

Indicates the tendency of the product's molecules to combine in a violent reaction.

HEALTH HAZARDS

Gives the immediate effects of over-exposure to the product by skin or eye contact, breathing vapors or dust, and ingestion. Common symptoms which may occur from exposure to the product are given.

CHRONIC EFFECTS

Refers to the effects that may occur after repeated or prolonged over-exposure to the product.

OTHER HEALTH EFFECTS

Includes medical conditions which may be aggravated by exposure to the product.

TOXICITY

Gives numerical results from animal tests on the product. LD₅₀ or LC₅₀ is the dose level that kills half of the animals tested.

EMERGENCY FIRST AID

Gives emergency and first aid instructions for treating overexposure by inhalation, ingestion, and skin and eye contact.

NOTE TO PHYSICIAN

May give any contraindicated treatment or recommended treatment for a licensed health care professional to conduct.

EXPOSURE CONTROL INFORMATION

EYE PROTECTION

Specification of eyes or face protection beyond normal use of safety glasses.

PROTECTIVE GLOVES

Indicates the need for protective gloves when skin contact may occur.

RESPIRATORY PROTECTION

Specification of the type of respirator recommended for use during routine or emergency situations.

VENTILATION

Specification of the type (local/general) of ventilation recommended to capture contaminants or prevent the build-up of hazardous atmospheres.

OTHER

Specification of other recommended personal protective equipment based on type and degree of hazard.

ENVIRONMENTAL PROTECTION

SPILLS AND LEAKS

Indicates special precautions for clean-up of spills and leaks and preparation of chemical for disposal.

DISPOSAL METHOD

Tells the EPA classification of the product as well as the proper disposal procedure.

EPA

Environmental Protection Agency

RQ

Reportable Quantity - The amount of the product or one of its components that, when spilled, must be reported to the EPA and possibly other regulatory agencies.

RCRA - Resource Conservation and Recovery Act.

CERCLA - Comprehensive Environmental Response, Compensation and Liability Act.

STORAGE REQUIREMENTS

Any unusual requirements or precautions for storage of the product.

ADDITIONAL PRECAUTIONS OR COMMENTS

States or re-emphasizes any special precautions or handling requirements.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, Ethyl Corporation makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its safety and suitability for their purposes prior to use. In no event will Ethyl Corporation be responsible for damages of any nature whatsoever resulting from the use or reliance upon information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESSED OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE, ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH THE INFORMATION REFERS.